

NSLS OHSAS Job Risk Assessment

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Name(s) of Risk Team Members: M. Caruso, N. Gmür, M. Fulkerson, D. Harder, S. Lamarra, G. Rakowsky	Point Value → Parameter ↓	1	2	3	4	5
Job Title: Magnetic field work Job Number or Job Identifier: LS-JRA-0032	Frequency (B)	≤once/year	≤once/month	≤once/week	≤once/shift	>once/shift
Job Description: Work with magnetic fields	Severity (C)	First Aid Only	Medical Treatment	Lost Time	Partial Disability	Death or Permanent Disability
Training and Procedure List (Optional):	Likelihood (D)	Extremely Unlikely <<1x/20yrs	Unlikely 1x/10-20yrs	Possible >1x/10-20yrs	Probable 1x/yr	Multiple >1x/yr
Approved by: W. R. Casey Date: 10/4/05 Rev. #: 1 Revision Log	Stressors (if applicable, please list all):		Reason for Revision (if applicable):		Comments:	

		Before Controls							After Initial Controls						After Additional Controls					
Job Step / Task	Hazard	Stressors Y/N	# of People A	Frequency B	Severity C	Likelihood D	Risk* AxBxCxD	Initial Controls	# of People A	Frequency B	Severity C	Likelihood D	Risk* AxBxCxD	Control(s) Added to Reduce Risk	# of People A	Frequency B	Severity C	Likelihood D	Risk* AxBxCxD	% Risk Reduction

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Operating power supplies	See LS-JRA-0002 for Work on Electrical Equipment in Zero Energy State See LS-JRA-0003 for Troubleshooting Energized Electrical Equipment in Range B																			
Working with magnetic fields	Exposure to magnetic fields >600 gauss	N	1	3	1	1	3	Work planning, IH surveys, Static Magnetic Fields SBMS Subject Area, Static Magnetic Field Exposure Form (as needed), procedures, training, work area conditions, field maps, "tell tales", posting/barriers	1	3	1	1	3							

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	Being injured (struck, pinched, etc.) by interaction of: - a magnet & a ferromagnetic object; - by two magnets Being startled (avoidance reaction to unexpected exposure to field)	N	1	3	3	3	27	Work planning, IH surveys, Static Magnetic Fields SBMS Subject Area, procedures, training, removing ferromagnetic and other materials that could be impacted by eddy currents, non-magnetic tools, field maps, "tell tales", posting/barriers, storing magnets in wooden boxes	1	3	1	1	3							
	Erasing magnetic encoding on ID & credit cards; jamming electronic watches	N	1	3	1	4	12	Work planning – removal of any personal magnetically encoded or electronic devices before approaching magnetic field area	1	3	1	2	6							

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	Medical implants exposed to fields >5 gauss: - pacemaker - defibrillator - insulin pump - cochlear implant - other	N	1	2	5	3	30	Work planning, OMC medical surveillance as necessary, IH surveys, Static Magnetic Fields SBMS Subject Area, procedures, training, work area conditions, field maps, "tell tails", posting/barriers	1	2	1	1	2							
Work with super conducting magnets: Quenching	Contact with cold surfaces, cryogens or cold gases	N	1	3	3	4	24	Gloves, face shield or goggles as appropriate, proper clothing, training, procedures, relief valve/burst disk configuration	1	3	1	2	8							
	Being struck by an object due to pressure release	N	1	3	3	3	27	Training, eye protection as appropriate, equipment inspection, vessel design/certification, procedures; relief valve/burst disk configuration	1	3	3	2	18							
	ODH: - see LS-JRA-0037 for Work in an Oxygen Deficiency Hazard Area																			

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Moving permanent magnets from one location to another (examples: klystron assembly; moving magnets out of storage areas)	Damaging computer hard drives and monitors; attracting ferromagnetic objects; coming close to persons with medical implants	N	1	2	5	4	40	Public address and email announcements prior to move; planning path of least impact; moving vulnerable equipment out of the way; walk down prior to and during move; safety shoes; procedures for moving magnets from storage locations (Magn. Meas. Lab.)	1	2	1	2	4							
	See LS-JRA-0018 for Manual Material Handling & LS-JRA-0019 for Mechanical Material Handling																			
Handling magnetic materials	Contaminating materials with moisture or grease; possible skin sensitivity; possible pyrophoric properties. Examples: SmCo, Nd-Fe-B	N	1	2	2	5	20	Wearing gloves; coating of magnets, if possible	1	2	1	1	2							
Disposal of permanent magnets	Residual magnetic fields; material toxicity; mechanical injury	N	1	1	2	4	8	Containerization; demagnetization by heating to Curie point; guidance from Waste Management Division	1	1	1	2	2							

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Machining magnets	Nuisance or toxic or pyrophoric dust	N	1	1	4	4	16	Send back to manufacturer.	1	1	1	1	1								
Further Description of Controls Added to Reduce Risk:																					
*Risk:	0 to 20 Negligible	21 to 40 Acceptable						41 to 60 Moderate				61 to 80 Substantial				81 or greater Intolerable					